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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,469	12/20/2005	Menno Willem Jose Prins	DE 030220	8156

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
UNDERWOOD, JARREAS C	
ART UNIT	**PAPER NUMBER**
2877	
MAIL DATE	**DELIVERY MODE**
09/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,469	PRINS ET AL.	
	Examiner	Art Unit	
	JARREAS C. UNDERWOOD	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/20/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in European Patent Office on 6/25/2003. It is noted, however, that applicant has not filed a certified copy of the 03101893 application as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because it is not in proper format. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Objections

3. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 limits the light source to "essentially monochromatic light".

4. Claim 18 is objected to because of the following informality: Putting an object between a light source and itself is not possible. For purposes of examination, examiner reads the claim as "between the light source and the support".

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 22-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for

example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 8 recites the limitation "the capture probe" in line 2. There is insufficient antecedent basis for this limitation in the claim. Examiner understands that claim 8 is originally depended upon claim 7 (which does contain a capture probe), but the language of the claim needs to be changed. Examiner suggests either “according to claim 7” or “a capture probe”.

7. Claims 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner believes the intent of the claim to be “use of the kit of claim 11”, but as the claim reads “use of a support” the claim is indefinite.

Claim 22 provides for the use of a support, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Examiner's Note

8. Examiner wishes to clarify the meaning of the phrase "and/or" in the claims. The term may mean "and", it may mean "or", it may mean "exclusive-or", it may mean "one", it may mean "some, but not all", it may mean "neither", and/or it may mean "both", although the scope of claimed subject matter is not limited in this respect.

9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Block (United States Patent 3,975,084).

10. As to claim 1, Block teaches a support comprising two essentially parallel surfaces (Figure 1, elements 26, 27) for the detection of optically-active substances within an evanescent-field formed on the surface of the support, in which in at least one area a plane of said surface is inclined with respect to the plane of the support by an angle .alpha..sub.wedge from 10.degree. to 85.degree..

While Block fails to explicitly teach the angle, Block teaches a silica slide and angles chosen with to the critical angles for total internal reflection (column 4, lines 48-

62). The angle for a silica-air interface is approximately 43 degrees, which is within the limitation of the claim.

Claims 1, 3-5, 7-9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiefenthaler et al (United States Patent 4,815,843).

11. As to claims 1 and 4, Tiefenthaler teaches a support comprising two essentially parallel surfaces (Figure 2, top and bottom of element 2) for the detection of optically-active substances (column 1, lines 37-47) within an evanescent-field formed on the surface of the support (column 8, lines 49-65).

While Tiefenthaler does not explicitly teach at least one area of a plane of said surface is inclined with respect to the plane of the support be an angle .alpha..sub.wedge from 10.degree. to 85.degree., Tiefenthaler teaches glass (column 3, lines 33-34) and total internal reflection in the light guide (column 2, lines 40-56). The angle for a glass-air interface is approximately 42 degrees, which is within the limitation of the claim.

12. As to claim 3, Tiefenthaler teaches everything claimed, as applied above in claim 1, in addition said surface, at which the detection of the optically-active substances takes place is covered by a top plate (Figure 63, element 12). It would have been obvious to one of ordinary skill in the art at the time of invention to have said surface, at which the detection of the optically-active substances takes place be covered by a top plate, in order to prevent the adsorption of macromolecules.

13. As to claim 5, Tiefenthaler teaches everything claimed, as applied above in claim 1, in addition Tiefenthaler teaches the refractive index of the support (n.sub.support) is

larger than 1.0 and smaller than 2.0, preferably between about 1.4 and 1.8 (column 3, lines 33-34).

14. As to claim 7, Tiefenthaler teaches everything claimed, as applied above in claim 1, in addition Tiefenthaler teaches at least one capture probe is attached to the surface of the inclined plane (Figure 2, element 6).

15. As to claim 8, Tiefenthaler teaches everything claimed, as applied above in claim 1, in addition the capture probe is selected from the group comprising proteins, in particular antibodies, receptors, enzymes, signaling proteins or fragments thereof; peptides; polysaccharides, nucleic acids, in particular ssDNA, dsDNA and RNA; nucleic acid analogs, in particular PNA; and small molecules (column 4, lines 42-56).

16. As to claim 9, Tiefenthaler teaches everything claimed, as applied above in claim 1, in addition the support further comprises reagents and/or buffers (Figure 6, element 14).

17. As to claim 11, Tiefenthaler teaches a kit comprising a support according to claim 1 and reagents and/or buffers (Figure 6, element 14).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tiefenthaler in view of Tajima et al (United States Patent Application Publication 2002/0003623).

18. As to claim 2, Tiefenthaler in view of Tajima teaches everything claimed, as applied above in claim 1, with the exception of at least 10, preferably at least 100 areas. However to do so is well known as taught by Tajima. Tajima teaches at least 10, preferably at least 100 areas (paragraph 0020). It would have been obvious to one of

ordinary skill in the art at the time of invention to have at least 10, preferably at least 100 areas, in order to take many measurements simultaneously.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tiefenthaler in view of Bogart et al (United States Patent 5,458,606).

19. As to claim 6, Tiefenthaler teaches everything claimed, as applied above in claim 1, with the exception of within the area on said surface a second plane of the surface adjacent to the first inclined plane is inclined in such that a symmetrical pyramidal structure is formed. However to do so is well known as taught by Bogart. Bogart teaches within the area on said surface a second plane of the surface adjacent to the first inclined plane is inclined in such that a symmetrical pyramidal structure is formed (Figure 2B). It would have been obvious to one of ordinary skill in the art at the time of invention to have within the area on said surface a second plane of the surface adjacent to the first inclined plane is inclined in such that a symmetrical pyramidal structure is formed, in order to increase the internal reflections per area of the support.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tiefenthaler in view of Challener et al (United States Patent 5,994,150).

20. As to claim 10, Tiefenthaler teaches everything claimed, as applied above in claim 1, with the exception of the support is an optical disc. However to do so is well known as taught by Challener. Challener teaches the support is an optical disc (Figure 2, element 250). It would have been obvious to one of ordinary skill in the art at the time of invention to have the support is an optical disc, in order to ease the transport and rapid analysis of the support.

Claims 12-14, 16-17, 19, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima in view of Tiefenthaler.

21. As to claims 12, 14, Tajima teaches a device for the detection of optically active substances within the evanescent-field formed at the surface of a support comprising:

a) at least one light source (Figure 2, element 7) emitting essentially monochromatic light of at least one wavelength (paragraph 0019), and

b) at least one detector means (Figure 2, element 17), where the detection of the optically-active substance occurs once the support is placed into the device.

Tajima fails to teach the at least one light source is arranged in such that it is opposite to the surface of a support. However to do so is well known as taught by Tiefenthaler. Tiefenthaler teaches the at least one light source is arranged in such that it is opposite to the surface of a support (Figure 8, elements 7, 2, 4 and D-9). It would have been obvious to one of ordinary skill in the art at the time of invention to have the at least one light source is arranged in such that it is opposite to the surface of a support, in order to most efficiently detect low-angle diffractions.

22. As to claim 13, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 12, in addition Tiefenthaler teaches the detector means is arranged on the same side as the light source (Figure 8, element 7, 2, 4 and D6). It would have been obvious to one of ordinary skill in the art at the time of invention to have the detector means is arranged on the same side as the light source, in order to most efficiently detect high-angle diffractions.

23. As to claim 16, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 12, in addition Tajima teaches a filter is arranged within the light path of the light source (column 2, lines 61-64).

24. As to claim 17, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 12, in addition Tajima teaches an objective lens is used to focus the light of the light source on the support (Figure 2, element between 7 and 9).

25. As to claim 19, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 12, in addition Tiefenthaler teaches a support comprising two essentially parallel surfaces (Figure 2, top and bottom of element 2) for the detection of optically-active substances (column 1, lines 37-47) within an evanescent-field formed on the surface of the support (column 8, lines 49-65).

While Tiefenthaler does not explicitly teach at least one area of a plane of said surface is inclined with respect to the plane of the support be an angle .alpha..sub.wedge from 10.degree. to 85.degree., Tiefenthaler teaches glass (column 3, lines 33-34) and total internal reflection in the light guide (column 2, lines 40-56). The angle for a glass-air interface is approximately 42 degrees, which is within the limitation of the claim.

26. As to claim 21, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 19, in addition the wavelength of the light emitted from the light source, the angle .alpha..sub.wedge of the inclined plane(s) of the surface of the support .alpha..sub.NA of the light directed at the disc, n.sub.support and n.sub.medium is (are) selected in such that the depth d of an evanescent-field, which is formed in a

medium comprising the optically active substance applied to the support is between 10 nm and 1 .mu.m, preferably between about 20 nm and 200 nm. While both Tajima and Tiefenthaler do not explicitly teach selecting a wavelength and angle for a desired field depth, it is inherent in their wavelengths and angles that the field depth would be within the claimed range. Examiner refers applicant to the white light of Tajima (paragraph 0019), the helium-neon laser of Tiefenthaler (column 6, lines 26-29), the argument as to the critical angle (used above in claim 1), and the Evanescent Field Penetration Depth demonstration at http://www.olympusmicro.com/primer/java/tirf/penetration/index.html.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima in view of Tiefenthaler, and in further view of Smolyaninov et al (United States Patent 6,897,436).

27. As to claim 15, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 12, with the exception of at least two light sources generating essentially monochromatic light of at least two different wavelengths. However to do so is well known as taught by Smolyaninov. Smolyaninov teaches at least two light sources generating essentially monochromatic light of at least two different wavelengths (Abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to have at least two light sources generating essentially monochromatic light of at least two different wavelengths, in order to allow selective control over photon tunneling.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima in view of Tiefenthaler, and in further view of Ghislain et al (United States Patent 5,939,709).

28. As to claim 18, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 17, with the exception of a mask is placed in the light path between the light source and the mask, which essentially blocks all light directed at the support with an angle .alpha..sub.NA smaller than arcsin (n.sub.medium/n.sub.support)-.alpha..sub.wedge. However to do so is well known as taught by Ghislain. Ghislain teaches a mask (Figure 3A, element 32) is placed in the light path between the light source and the mask, which essentially blocks all light directed at the support with an angle .alpha..sub.NA smaller than arcsin (n.sub.medium/n.sub.support)-.alpha..sub.wedge (column 14, lines 58-61). It would have been obvious to one of ordinary skill in the art at the time of invention to have a mask is placed in the light path between the light source and the mask, which essentially blocks all light directed at the support with an angle .alpha..sub.NA smaller than arcsin (n.sub.medium/n.sub.support)-.alpha..sub.wedge, in order to remove ineffective light.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajima in view of Tiefenthaler, and in further view of Challener et al (United States Patent 5,994,150).

29. As to claim 20, Tajima in view of Tiefenthaler teaches everything claimed, as applied above in claim 19, with the exception of the support is an optical disc. However to do so is well known as taught by Challener. Challener teaches the support is an

optical disc (Figure 2, element 250). It would have been obvious to one of ordinary skill in the art at the time of invention to have the support is an optical disc, in order to ease the transport and rapid analysis of the support.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JARREAS C. UNDERWOOD whose telephone number is (571) 272-1536. The examiner can normally be reached on Monday-Friday 0530-1400.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. C. U./
Examiner, Art Unit 2877

Jarreas Underwood
Patent Examiner
Art Unit 2877
9/16/2008

/L. G. Lauchman/
Primary Examiner, Art Unit 2877

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